

Amendments to the Claims

1. (currently amended) A method for processing radio frequency (RF) signals in a multi-antenna ~~systems~~ system, comprising:
 3. generating L_t input data streams in a transmitter, where L_t is an integer;
 5. modulating the L_t input data streams to RF signals;
 6. switching the RF signals to $t \geq L_t$ RF branches, where t is an integer
7. and $t \geq L_t$;
 8. applying a phase-shift transformation to the RF signals branches by a $t \times t$ matrix multiplication operator Φ_1 , whose output are t RF signals;
 10. transmitting the t RF signals over a channel by t transmit antennas;
 11. receiving the transmitted signals by r antennas in a receiver, where r is an integer;
 13. applying a phase-shift transformation to the r RF signals by a $r \times r$ matrix multiplication operator Φ_2 to generate r streams;
 15. selecting L_r branches from the r streams, where L_r is an integer;
 16. demodulated demodulating the L_r signal streams; and
 17. processing the demodulated L_r signal streams in baseband to recover
18. output data streams corresponding to the input data streams.

1. 2. (original) The method of claim 1, in which each of the L_t input data stream has a weight, and further comprising:
 3. summing the L_r weighted data streams before the demodulating and decoding.

- 1 3. (original) The method of claim 1, in which the L_r input data streams are
- 2 generated by a space-time block coder.

- 1 4. (original) The method of claim 1, in which the L_t input data streams are
- 2 generated by a space-time trellis coder.

- 1 5. (original) The method of claim 1, in which the input data streams are
- 2 space-time layered structures.

- 1 6. (original) The method of claim 1, in which $t = L_t$, and the matrix Φ_1 is an
- 2 identity matrix.

- 1 7. (original) The method of claim 1, in which $r = L_r$, and the matrix Φ_2 is an
- 2 identity matrix.

- 1 8. (original) The method of claim 1, in which entries of the matrix Φ_1 have
- 2 constant modulus phase-only terms.

- 1 9. (original) The method of claim 1, in which entries of the matrix Φ_2 have
- 2 constant modulus phase-only terms.

- 1 10. (original) The method of claim 1, in which entries of the matrices Φ_1 and
- 2 Φ_2 have constant modulus phase-only terms.

- 1 11. (currently amended) The method of ~~claims 8~~ claim 8, in which the
- 2 phase-only terms adapt to an estimate of an instantaneous channel state.

- 1 12. (original) The method of claim 8, in which the phase-only terms adapt to
- 2 an estimate of an average channel state.

- 1 13. (original) The method of claim 1, in which the matrix Φ_1 is a fast Fourier
- 2 transform matrix.

- 1 14. (original) The method of claim 1, in which the matrix Φ_2 is a fast Fourier
- 2 transform matrix.

- 1 15. (original) The method of claim 1, in which the matrices Φ_1 and Φ_2 are
- 2 fast Fourier transform matrices.